

REMARKS

Claims 3, 5 and 14 are rejected under 35 USC §112 and Claims 1-5 and 8-14 are rejected under 35 USC § 103. The applicants respectfully traverse these rejections and request reconsideration of the application in view of the above amendments and the following remarks.

Claims 1, 3 and 5 have been amended and Claim 14 has been canceled. None of these changes constitute new matter since this clarification of the claims is supported by the original disclosure.

REJECTIONS UNDER 35 USC §112

Claims 3, 5 and 14 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action suggests that the silicon to gallium atomic ratio recited in Claim 2 (greater than 5) and Claim 3 (5-400) are inconsistent, the weight amount on which platinum is based in Claim 5 is unclear and whether the catalyst uses a sodium form of the zeolite as in Claim 14 is unclear.

Claim 3 has been amended to depend on Claim 1. Claim 5 has been amended and now reads in part "wherein platinum is present at 0.86wt% of the final catalyst". Support for this language is found on page 14, line 11. This change in language has been made to Claim 5 to clarify the claimed subject matter without intending to narrow the scope of the claims. Claim 14 has been canceled.

### REJECTIONS UNDER 35 USC §103

Claims 1-5 and 8-13 was rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 4,8901,463 ("Chu") in view of U.S. Patent no. 4,416,806 ("Bernard"). Claim 14 was rejected under 35 USC §103(a) as being unpatentable over Chu in view of Bernard and admitted prior art disclosed in the Specification. Specifically, the Office Action suggests that Chu discloses a process of aromatization of paraffins to aromatics in the presence of a ZSM-5 zeolite containing gallium and Bernard discloses treating an aromatization catalyst with sulfur and reduced with hydrogen.

Chu, alone or in combination with Bernard, does not teach, disclose or suggest a catalyst consisting essentially of a zeolite having gallium and silicon in the framework on which platinum has been deposited. Chu discloses an added metal which may be deposited on the surface of the zeolite by conventional ion-exchange or impregnation techniques (col. 3, lines 45-49). The added metal may be Groups I through VIII of the Periodic Table, examples of which are zinc, platinum, rhenium, cobalt, titanium, tellurium, sodium, nickel, boron, chromium, vanadium, copper, palladium, calcium, and rare earth metals (col. 3, lines 49-54, and col. 5, lines 15-20).

MPEP §2142 establishes the criteria for establishing a *prima facie* case of obviousness and requires some suggestion or motivation to modify the reference. Such suggestion or motivation for a catalyst consisting essentially of a zeolite having gallium and silicon in the framework on which platinum rather than one of the other metals disclosed in Chu has been deposited did not exist. MPEP§2142 also requires a reasonable expectation of success. While it may have been obvious-to-try a process for the aromatization of hydrocarbons using a catalyst consisting essentially of a zeolite having gallium and silicon in the framework on which platinum rather than one of the other

metal disclosed in Chu has been deposited, obvious-to-try is not equivalent to a reasonable expectation of success. Further, according to MPEP§2142, the prior art reference must teach or suggest all the claim limitations. The cited references do not teach or suggest using a catalyst consisting essentially of a zeolite having gallium and silicon in the framework on which platinum has been deposited for a process for the aromatization of hydrocarbons.

Even if a *prima facie* case of obviousness were established by the cited references, the unexpected results of the claimed invention would satisfy the requirements of patentability. The applicants request that the examiner take into consideration the attached Affidavit under 37 CFR §1.132, in which different metals deposited on a zeolite were used in a process for aromatization of alkanes. One was a catalyst of an embodiment of the claimed invention, a ZSM-5 on which platinum had been deposited. Others were catalysts on which no metal, zinc or rhenium had been deposited. The results shown in the Affidavit distinguish the claimed invention from the disclosure of Chu. In a process for aromatization of alkanes a catalyst consisting essentially of platinum deposited on a zeolite consisting essentially of gallium and silicon in the framework has better performance in aromatic yield, specifically benzene, toluene and xylene, than that for catalysts on which no metal or metals other than platinum disclosed by Chu have been deposited. In addition, the conversion was higher for the catalyst containing platinum than that for the catalysts containing other metals or no metal.

Claim 1 has been amended and now reads in part "a catalyst consisting essentially of platinum deposited on a zeolite consisting essentially of gallium and silicon in the framework". This change in language has been made to Claim 1 to clarify the claimed subject matter without intending to narrow the scope of the claims.

A Petition and Fee for Extension of Time under 37 CFR §1.136(a) is being filed concurrently with this paper. The Commissioner is hereby authorized to charge the fee of \$1020.00 under 37 CFR §1.17(a)(3) and any additional fees due by filing this paper or to credit any overpayment to Account No. 502025.

On the basis of the above amendments and remarks, reconsideration of this application is requested and its allowance of the claims is requested at the examiner's earliest convenience. No new matter has been added.

Respectfully submitted,



Jim Wheelington  
Reg. No. 33,051

SABIC Americas, Inc.  
SABIC Technology Center  
1600 Industrial Blvd.  
Sugar Land, Texas 77478  
(281) 207-5719  
Customer No. 30691